

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

HAMMETT, Audrey, Grace, Campbell  
Amersham plc  
Amersham Place  
Little Chalfont  
Buckinghamshire HP7 9NA  
GRANDE BRETAGNE

RECEIVED

26 OCT 2004

PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

DUE DATE:	—
FORMALITIES:	FISL ✓
PAT. OFF:	AF (F)
ON DB:	—

Date of mailing  
(day/month/year)

21.10.2004

Applicant's or agent's file reference  
PH02107 PCT

CASE NO: PH02107-PCT

IMPORTANT NOTIFICATION

International application No.  
PCT/GB 03/05630

International filing date (day/month/year)  
19.12.2003

Priority date (day/month/year)  
20.12.2002

Applicant  
HAMMERSMITH IMANET LIMITED et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

## 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international  
preliminary examining authority:



European Patent Office  
D-80298 Munich  
Tel. +49 89 2399 - 0 Tx: 523656 epmu'd  
Fax: +49 89 2399 - 4465

Authorized Officer

Roche, S


Tel. +49 89 2399-8031



# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

Applicant's or agent's file reference PH02107 PCT		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/GB 03/05630		International filing date (day/month/year) 19.12.2003	Priority date (day/month/year) 20.12.2002
International Patent Classification (IPC) or both national classification and IPC C07B59/00			
Applicant HAMMERSMITH IMANET LIMITED et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li>I <input checked="" type="checkbox"/> Basis of the opinion</li> <li>II <input type="checkbox"/> Priority</li> <li>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li>IV <input type="checkbox"/> Lack of unity of invention</li> <li>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input type="checkbox"/> Certain defects in the international application</li> <li>VIII <input type="checkbox"/> Certain observations on the international application</li> </ul>			
Date of submission of the demand  18.06.2004		Date of completion of this report  21.10.2004	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer  Kleidernigg, O  Telephone No. +49 89 2399-2143	



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB 03/05630

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-13 as originally filed

**Claims, Numbers**

1-7 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB 03/05630

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-7
	No: Claims	
Inventive step (IS)	Yes: Claims	1-7
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-7
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**Ad Section V**

- D1: WO 2003/002157 A (AMERSHAM PLC, UK;IMAGING RESEARCH SOLUTIONS LTD.) 9 January 2003 (2003-01-09)
- D2: S. COMAGIC ET. AL.: 'EFFICIENT SYNTHESIS OF 2-BROMO1-[18F]FLUOROETHANE AND ITS APPLICATION IN THE AUTOMATED PREPARATION OF 18F-FLUORETHYLATED COMPOUNDS' APPLIED RADIATION AND ISOTOPES, vol. 56, 2002, pages 847-851, XP002277733 cited in the application

The present application is directed to a process for the production of an [18F]fluoroalkane which comprises treatment of a solid support-bound precursor of formula (I):

solid support - Linker-SO<sub>2</sub>-O-(CH<sub>2</sub>)<sub>n</sub>-X (I) with <sup>18</sup>F<sup>-</sup> to produce the [18F]fluoroalkane of Formula (II) <sup>18</sup>F-(CH<sub>2</sub>)<sub>n</sub>-X, with X=Cl, Br, I.

D2 represents the closest prior art and differs from the subject matter of the present application insofar, that the reaction protocol does not involve solid phase synthesis. Moreover, the compounds claimed in claims 4-5 as well as the radiosynthesis kit is not disclosed in the available prior art.

The objective technical problem may, thus, be regarded as the provision of an improved process for the production of an [18F]fluoroalkane.

The solution is given in claim 1 and concerns the use solid phase bound educts, which have the advantage, that after [18F]fluorination the contaminated byproducts solvents etc. can be easily separated from the product.

Thus, the subject matter of claims 1-7 fulfils the criteria of Article 33(2) and (3) PCT.